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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/013,103	11/06/2001	Krishna Seshan	42390P5778D	1577

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER	
LEWIS, MONICA	

ART UNIT	PAPER NUMBER
2822	

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/013,103	SESHAN ET AL.	
	Examiner	Art Unit	
	Monica Lewis	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-23 and 25-29* is/are pending in the application.

4a) Of the above claim(s) *23,25 and 26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-22 and 27-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 September 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the response filed May 25, 2006.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Response to Amendment

3. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 27 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cox (U.S. Patent No. 6,166,439).

In regards to claim 27, Cox discloses the following:

a) a substrate (50b) (For Example: See Figure 4H);

b) an insulating layer (50a) formed directly on the substrate (For Example: See Figure 4H);

c) at least one bond pad (54) formed directly on the insulating layer (For Example: See Figure 4H);

d) a first layer (61) (For Example: See Figure 4H);

e) the first layer is disposed between the insulating layer and the second layer (59) (For Example: See Figure 4H);

f) the first layer and the second layer comprise one common chemical element other than silicon (For Example: See Column 7 Lines 44-46 and Column 8 Lines 12-16); and

g) the second layer is a passivation layer formed on the first layer and a portion of a surface of the bond pad that is less than the entire surface (For Example: See Figure 4H).

Finally, the following limitation makes it a product by process claim: a) "formed from a modification of a portion of the insulating layer." The MPEP § 2113, states, "Even though product -by[-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted).

A *"product by process"* claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972): *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); In re Fessmann, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a *"product by, all of"* claim, and not the patentability of the process, and that an old or obvious product, whether claimed in *"product by process"* claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear.

6. Claims 17-19, 21 and 22 are rejected under 35 U.S.C. 103(a) as obvious over Cox (U.S. Patent No. 6,166,439) in view of Applicant's Prior Art.

In regards to claim 17, Cox discloses the following:

a) a substrate (50b) comprising at least one level of interconnection (For Example: See Figure 4H);

b) an insulating layer (50a) formed directly on a surface of the substrate (For Example: See Figure 4H);

c) at least one bond pad (54) formed directly on the insulating layer, the at least one bond pad coupled through the insulating layer to the at least one level of interconnection of the substrate (For Example: See Figure 4H);

d) an adhesion layer (61) formed on a surface of the insulating layer such that the insulating layer is disposed between the adhesion layer and the substrate (For Example: See Figure 4H); and

e) a passivation layer (59) formed on a surface of said adhesion layer and a portion of a surface of the bond pad that is less than the entire surface (For Example: See Figure 4H).

In regards to claim 17, Cox fails to disclose the following:

a) a first passivation layer formed on a top surface of the conductive structure.

However, Applicant's Prior Art discloses a semiconductor device that has a first passivation layer (40) formed on a top surface of the conductive structure (33) (For Example: See Figure 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Cox to include a first passivation layer formed on a top surface of the conductive structure as disclosed in Applicant's Prior Art because it aids in protecting the device from scratches, moisture and impurities (For Example: See Page 10 Lines 9 and 10).

Additionally, since Cox and Applicant's Prior Art are both from the same field of endeavor, the purpose disclosed by Applicant's Prior Art would have been recognized in the pertinent art of Cox.

In regards to claim 18, Cox fails to disclose the following:

a) the passivation layer is a first passivation layer, the integrated circuit further comprising a second passivation layer formed upon said first passivation layer.

However, Applicant's Prior Art discloses a semiconductor device that has a second passivation layer (45) formed upon said first passivation layer (40) (For Example: See Figure 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Cox to include a second passivation layer formed upon said first passivation layer as disclosed in Applicant's Prior Art because it aids in protecting the device from scratches, moisture and impurities (For Example: See Page 10 Lines 9 and 10).

Additionally, since Cox and Applicant's Prior Art are both from the same field of endeavor, the purpose disclosed by Applicant's Prior Art would have been recognized in the pertinent art of Cox.

In regards to claim 19, Cox discloses the following:

a) oxide layer includes silicon dioxide ($Si0_2$) (For Example: See Page 5 Lines 1-7).

In regards to claim 21, Cox fails to disclose the following:

a) first passivation layer includes silicon nitride (Si_3N_4).

However, Applicant's Prior Art discloses a semiconductor device that has a first passivation layer (40) that includes silicon nitride (Si_3N_4) (For Example: See Figure 6 and

Page 10 Line 15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Cox to include a semiconductor device that has a first passivation layer that includes silicon nitride as disclosed in Applicant's Prior Art because it aids in protecting the device from scratches, moisture and impurities (For Example: See Page 10 Lines 9 and 10).

Additionally, since Cox and Applicant's Prior Art are both from the same field of endeavor, the purpose disclosed by Applicant's Prior Art would have been recognized in the pertinent art of Cox.

In regards to claim 22, Cox fails to disclose the following:

a) second passivation layer includes polyimide.

However, Applicant's Prior Art discloses a semiconductor device that has a second passivation layer (45) that includes polyimide (For Example: See Figure 6 and Page 10 Line 16). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Cox to include a semiconductor device that has a second passivation layer that includes polyimide as disclosed in Applicant's Prior Art because it aids in protecting the device from scratches, moisture and impurities (For Example: See Page 10 Lines 9 and 10).

Additionally, since Cox and Applicant's Prior Art are both from the same field of endeavor, the purpose disclosed by Applicant's Prior Art would have been recognized in the pertinent art of Cox.

7. Claim 20 is rejected under 35 U.S.C. 103(a) as obvious over Cox (U.S. Patent No. 6,166,439) in view of Applicant's Prior Art and Saito et al. (Japanese Patent No. 405166803).

In regards to claim 20, Cox fails to disclose the following:

a) adhesion layer includes silicon oxynitride.

However, Saito et al. ("Saito") discloses a semiconductor device that has an adhesion layer (3) that includes silicon oxynitride (For Example: See Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Cox to include a semiconductor device that has an adhesion layer that includes silicon oxynitride as disclosed in Saito because it aids in providing excellent adhesive properties (For Example: See Abstract).

Additionally, since Cox and Saito are both from the same field of endeavor, the purpose disclosed by Saito would have been recognized in the pertinent art of Cox.

8. Claim 28 is rejected under 35 U.S.C. 103(a) as obvious over Cox (U.S. Patent No. 6,166,439) in view of Saito et al. (Japanese Patent No. 405166803).

In regards to claim 28, Cox fails to disclose the following:

a) the first layer includes silicon oxynitride.

However, Saito discloses a semiconductor device that has a first layer (3) that includes silicon oxynitride (For Example: See Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Cox to include a semiconductor device that has a first layer that includes silicon oxynitride as

disclosed in Saito because it aids in providing excellent adhesive properties (For Example: See Abstract).

Additionally, since Cox and Saito are both from the same field of endeavor, the purpose disclosed by Saito would have been recognized in the pertinent art of Cox.

In regards to claim 29, Cox fails to disclose the following:

a) second layer includes silicon nitride (Si_3N_4).

However, Saito discloses a semiconductor device that has a second layer (4) that includes silicon nitride (Si_3N_4) (For Example: See Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Cox to include a semiconductor device that has a second layer that includes silicon nitride as disclosed in Applicant's Prior Art because it aids in providing excellent adhesive properties (For Example: See Abstract).

Additionally, since Cox and Saito are both from the same field of endeavor, the purpose disclosed by Saito would have been recognized in the pertinent art of Cox.

Response to Arguments

9. Applicant's arguments filed 1/17/06 have been fully considered but they are not persuasive. First, Applicant argues that Cox fails to disclose "a bond pad formed directly on the insulating layer...Cox describes conductive lines...that exist in an integrated circuit to provide necessary electrical connections between devices." Bonding pads are defined as electrical terminals on the chip used for connection to the package electrical system (See Microchip Fabrication by Peter Van Zant Page 596). Therefore, bonding pads are disclosed as based on the definition and Applicant's explanation of "conductive lines."

Second, Applicant argues that Cox fails to disclose "a passivation layer formed on the first layer and a portion of a surface of the bond pad." However, Cox discloses a second layer (59) that is a passivation layer formed on the first layer (61) and a portion of a surface of the bond pad (54) that is less than the entire surface (For Example: See Figure 4H).

Third, Applicant argues that there "APA does not teach or suggest forming a passivation layer on an adhesion layer...the primary purpose of Cox is to provide LCD material 59 attached to adhesion promoter layer 61 and between conductive lines 54, 56 and 58. Hence, the teachings of Cox do not permit a passivation layer between adhesion promoter layer 61 and LDC material 59." However, APA is not being utilized to teach a passivation layer on an adhesion layer. Instead, APA is being utilized to teach a passivation layer formed on a top surface of the conductive structure.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 571-272-1838. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular and after final communications.

ML
June 25, 2006